

Lexington Kentucky
Sinkhole Ordinance, Lexington-Fayette
Urban-County Government
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SINKHOLE ORDINANCE,
LEXINGTON-FAYETTE URBAN-COUNTY GOVERNMENT,
LEXINGTON, KENTUCKY

SRA 85-2
Article 6-7(1)

SINKHOLES

For purposes of this section the following definitions shall apply:

A. Sinkhole-- Any closed depression formed by removal (typically underground) of water, surficial soil, rock, or other material. The existence of a sinkhole shall be Indicated by the closed depression contour lines on the Unified Mapping Program topographic maps or other documents as approved by the Urban County Engineer. Its actual limits may, however, be determined by field measurements with concurrence of the Urban County Engineer. Sinkholes may be either circular in plan or irregular, depending upon structural control.

B Immediate Sinkhole Drainage Area--Any area that contributes surface water directly to the sinkhole(s); this does not include areas which contribute surface water indirectly to a sinkhole (via streams).

C. Sinkhole Cluster Area--Any area that contributes surface water other than by way of a stream to a sinkhole which is located in a group of two or more sinkholes clustering together.

Section 1 Plan Requirements

A sinkhole, the immediate sinkhole drainage area, a sinkhole cluster area, or portions of such items shall be shown on any development or preliminary subdivision plan for land where they exist. Sinkhole-related nonbuildable areas and restricted fill areas shall be shown on final subdivision plans and development plans.

Section 2 Sinkhole-Related Nonbuildable Areas

Based upon the topography, geology, soils, and known history of the sink-hole (such as past filling) and the developer's engineer's stormwater analysis and the Planning Commission shall establish sinkhole-related, nonbuildable areas. No buildings, parking areas, or other structures

shall be permitted within the sinkhole related, nonbuildable area.

This nonbuildable area shall follow the limits of the sinkhole in most cases. However, the nonbuildable area may be expanded or contracted by action of the Planning Commission where warranted due to the nature of the specific sinkhole, the underlying geology, soils, drainage, and any related information such as depth to bedrock. In sinkhole cluster areas, the Division of Engineering may require the developer to provide recommendations from a consulting engineer and a consulting hydrogeologist based upon substantial and state-of-the-art field studies and evaluation of the specific sinkhole system. Such studies shall be submitted to the Division of Engineering and Planning, which shall review said studies and make recommendations to the Planning Commission.

Section 3 Development in Sinkhole Drainage Areas

Development may occur in the immediate sinkhole drainage area if the developer provides alternative surface drainage away from the sinkhole, while keeping the water in the same surface drainage basin, and provided further that the water shall not go into another sinkhole drainage area off the petitioner's property, nor into another stream of known flooding problems. The immediate sinkhole drainage area (or portion thereof) which cannot be provided with an alternative drainage system can be deleted from the development area and can be used to meet the normal open space requirements. The developer may request that the Planning Commission increase the density on the remainder of the developable area, with the total resulting density no greater than if the entire area were developed to the permitted density.

For portions of the immediate sinkhole drainage area where alternative surface drainage methods cannot be provided, as determined by the Division of Engineering, the developer may choose one of the options described in Section 4 herein below.

Section 4 Sinkhole Surface Drainage Analyses

The sinkhole can be used for surface runoff drainage of a proposed development if the conditions of either of the following alternatives are met:

A. Alternative 1: A sinkhole can be used for surface runoff of a proposed development with or without retention or detention facilities as recommended by a consulting engineer and a consulting hydrogeologist, provided that any increase in the quantity of surface runoff due to development of the entire sinkhole drainage area in question will not aggravate flooding on the proposed development, adjacent existing development, or connected/adjacent sinkhole sub-surface systems. Such engineering and geologist reports must be substantive and based on state-of-the-art field studies and evaluation of the specific sinkhole system. The Planning Commission shall not approve development proposals subject to Alternative 1 provisions unless the study findings set the requirements of this subsection and the Division of Engineering concurs with those findings and recommendations.

B. Alternative 2: A sinkhole can be used for surface drainage of a proposed development if

all of the following conditions and provisions are met:

1. That the runoff from the development area is either completely retained in a retention basin or detained in a detention basin. The flow rate out of the above basins shall be regulated so that it is no greater than the flow rate into the sinkhole of the development area prior to development of each of the following storms: 10 year/1-hour, 25 year/24-hour storm or a 100 year/1-hour storm. The outflow rate shall not aggravate flooding on downstream properties for any of these storms.
2. As previously noted in subsection 3, the developer may elect to divert enough of the sinkhole drainage area so that the development of the remaining area does not increase the total quantity of runoff into the sinkhole. Where additional runoff is anticipated, a consulting engineer and hydrogeologist shall evaluate and show the effect of any additional quantity of runoff to the sinkhole and sinkhole system. For approval, the study must show the development will not aggravate flooding on the proposed development, adjacent lands, or connected/adjacent sinkhole systems. The Division of Engineering shall review the study findings and make recommendations to the Planning Commission for alternative 2 to be accepted.
3. Where the sinkhole outlet is offsite, either the runoff leaving the subject property must be shown to be no greater in flow or in quantity than that which existed before development or written approvals must be submitted from owners of property where any increase in flow or quantity of water must go to reach the sinkhole outlet. Easement areas shall be approved by the Division of Engineering based upon the calculations of the engineer of the developer on the proposed ponding elevation.

Section 5 Filling in Sinkholes and Drainage Areas

Development may involve some filling of the sinkhole drainage area or sinkhole upon approval by the Urban County Engineer. However, no principal or accessory buildings with soil-bearing foundations shall be permitted to be constructed on fill within the limits of any sinkhole.

Section 6 Required Plan Notes

For any land which includes a sinkhole-related, nonbuildable area, or restricted fill area, the developer shall place the following notes on the final subdivision plan or development plan:

- A. Based upon the evidence presented to them, the Planning Commission has identified sinkhole related, nonbuildable areas on this plan. However, approval of this plan is not to be interpreted as any guarantee that future sinkhole problems will not occur due to either natural or human activities.
- B. Any sinkhole related, nonbuildable area identified here has been determined to be unsuitable for any construction activity, and no building, parking areas, or other structures shall be permitted within this area.

C. Any sinkhole or restricted fill area identified here has been determined to be unsuitable for soil bearing foundation, and the entire structure of any building (including the floor system) constructed therein must be founded on solid rock.

D. No basement or first floor elevations shall be lower than elevation _____ USCS datum, said elevation being at least 1 foot above the 100 year six-hour storm assuming no outflow from the pinkhole.

Based upon the facts of each case additional notes may be required by the Planning Comission.